

REMARKS

Claims 1, 2 and 13 stand rejected under 35 USC 102(b) as being anticipated by Ramarge et al. (US Patent Publ. No. 2002/0100605). Claim 12 stands rejected under 35 USC 103(a) as being obvious over Ramarge et al. Applicants respectfully disagree with the Examiner's analysis of these claims as the cited prior fails to teach or suggest important features of the claims. However, in order to advance prosecution, Applicants have amended claim 1 to recite the features of claim 2. Applicants reserve the right to pursue the subject matter of the original claims in one or more continuation applications.

More specifically, amended claim 1 requires that "at least a portion of said shank being formed with an array of substructures selected from protuberances and concavities, wherein said shank has a circumference and said array of substructures are spaced around the circumference of said shank and longitudinally along said shank." Nowhere does the cited prior art teach or suggest these features.

The prior art document to Ramarge et al. defines three distinct and separate materials, namely a first sheath insulating material, a second shed insulating material and a third hydrophobic material (RTV silicon coating 220) that is applied to the first and second materials (see paragraphs 0007 and 0039-0045). The RTV silicon coating 220 has a ring like structure around the circumference of the shank (see Figures 4 and 5). To form this structure, the RTV silicon coating 220 is separated in the longitudinal direction of the shank by non-coating regions (see paragraph 0041). Thus, it is clear that Ramarge

et al. describes a single hydrophobic coating structure that covers the entire circumference of the shank, but fails to teach or suggest an array of substructures spaced around the circumference of the shank as required by claim 1. This feature is important in claim 1 because it allows for control of the surface area along the insulating structure to influence the variation in the leakage current density and surface electric field for a uniform conductivity pollution layer at all points of the insulating structure (see paragraph 0044 of the present application). In Ramarge et al., the RTV silicon coating 220 is a single hydrophobic coating structure which is shaped to extend around the entire circumference of the shank. This is clearly different than the array of substructures as recited in claim 1, and does not provide the technical benefits of the array of substructures as recited in claim 1.

Therefore, essential features of the claimed invention are not disclosed or suggested by Ramarge et al. For these reasons, the invention of claim 1 is clearly patentable over the cited prior art.

The dependent claims are patentable over the cited art for those reasons advanced above with respect to claim 1 from which they depend and for reciting additional features that are not taught or suggested by the cited prior art.

For example, claim 13 recites that "said array of substructures define a first outer surface of said shank, wherein the surface area of said first outer surface is substantially constant per unit length along the longitudinal direction of said shank." Nowhere does

the cited prior art teach or suggest these features. In rejecting claim 13, the Examiner asserts that these features of claim 13 are shown in Figure 4 of Ramarge et al. Applicants respectfully request that the Examiner provide some rationale as to how Fig. 4 suggests these features and thus supports this assertion. Without such rationale, the Examiner has failed to establish a prima facie case of obviousness of claim 13. Importantly, these features permit the control of the longitudinal distribution of leakage current density and voltage gradient and thus offer significant advantages over the cited prior art.

In light of all of the above, it is submitted that the claims are in order for allowance, and prompt allowance is earnestly requested. Should any issues remain outstanding, the Examiner is invited to call the undersigned attorney of record so that the case may proceed expeditiously to allowance.

Respectfully submitted,

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